

CLAIMS

WE CLAIM:

1. A medication dispensing apparatus comprising:
 - 5 a housing;
an axially extending drive member rotatably and axially fixed within said housing during dose preparing, and rotatably fixed and axially movable in a distal direction relative to said housing during dose injecting, said drive member including a threaded shaft;
 - 10 a fluid container defining a medicine-filled reservoir with a movable piston at one end and an outlet at the other end, said piston engagable by said drive member to be advanced toward said outlet when said drive member is moved distally;
a nut threadedly engaged with the drive member shaft to be axially movable relative thereto during rotation of said nut relative to said drive member;
 - 15 a nut driver rotatably and axially shiftable relative to said housing;
wherein said nut and said driver include cooperating elements which when engaged rotatably lock together said nut and said driver, and which when disengaged permit relative rotation of said nut and said driver;
a guide disposed on one of said driver and said housing;
 - 20 a follower disposed on the other of said driver and said housing;
wherein said guide and follower cooperate to promote a user moving said driver relative to said housing along a travel path that operates the apparatus, said travel path including a dose preparing section and a dose injecting section, said dose preparing section including a reset segment, a nut engaging segment, and a nut rotating segment
 - 25 connected in sequence, and wherein said injecting section connects said nut rotating segment with said reset segment;
wherein said cooperating elements of said nut and said driver are disengaged when said driver is disposed in said reset segment;
wherein said cooperating elements of said nut and said driver become engaged
 - 30 when said driver is shifted through said nut engaging segment from said reset segment to said nut rotating segment;

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wherein the engagement of said cooperating elements of said nut and said driver cause said nut to screw proximally along said threaded shaft when said driver is shifted through said nut rotating segment from said nut engaging segment to said injecting section;

5 wherein when said driver is shifted through said injecting section from said nut rotating segment to said reset segment, said nut and said drive member are shifted in the distal direction to axially advance said fluid container piston to dispense medicine from said outlet, and said cooperating elements of said nut and said driver become disengaged; and

10 said guide including a hard stop for said follower to define an end of said reset segment of said driver travel path, and said hard stop when abutted by said follower rotationally aligns said driver with said nut engaging segment of said travel path.

2. The medication dispensing apparatus of claim 1 wherein said nut engaging
15 segment and said dose injecting section of said travel path are oriented in the axial direction.

3. The medication dispensing apparatus of claim 1 wherein said reset
segment of said travel path is oriented generally transverse to said axial direction.

20 4. The medication dispensing apparatus of claim 1 wherein said nut rotating segment of said travel path is helically oriented.

5. The medication dispensing apparatus of claim 1 wherein said travel path
25 involves both 360 degrees of rotation of said driver and an equal amount of distal and proximal travel of said driver, whereby said driver, at the end of an injection, has the same axial position and same rotational position as at the end of the prior injection, and wherein said guide includes a second hard stop for said follower to define a second end of said reset segment of said driver travel path, which second hard stop prevents rotation of
30 said driver in one direction after the end of the injection by abutment by said follower.

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6. The medication dispensing apparatus of claim 1 wherein along said injection section of said travel path, said guide comprises first and second surfaces that define a channel in which said follower is slidable, said surfaces during injecting serving as physical stops to prevent rotation of said nut driver by abutment by said follower until
5 an injection is complete, thereby limiting misuse of the apparatus.

7. The medication dispensing apparatus of claim 6 wherein along said nut rotating segment of said travel path, said guide comprises third and fourth surfaces that define a channel in which said follower is slidable, said third surface providing a distal
10 barrier during nut rotating that prevents distal plunging of said driver by abutment by said follower until said follower passes from said nut engaging segment to said injecting section, thereby limiting misuse of the apparatus.

8. The medication dispensing apparatus of claim 1 wherein said follower
15 comprises an outward projection formed on said driver, said outward projection being radially fixed at all times during pen use.

9. The medication dispensing apparatus of claim 8 wherein said guide
20 comprises a projecting rib formed on said housing and that extends continuously around an interior surface of said housing.

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